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Nathan Graham Busse

SKILLS

1. Problem solving.
 - Critical Thinking
 - Creativity & Innovation
 - Adaptability & Self-Learning
 - Motivated
 - Eager to learn.
 - Attention to Detail
 - Time Management
 - Communication & Collaboration
 - Leadership & Decision-Making
 - Linux System Administration (Debian Buster -> Debian Bookworm, Ubuntu Server, Linux-Mint, RaspberryOS Desktop, RaspberryOS lite, Raspbian Desktop, Raspbian lite and, Kali-linux)
 - Microsoft Windows Administration (Windows XP, 7, 10 & 11)
 - Cybersecurity & Data Privacy
 - Programming & Scripting
 - 3D Printing & Hardware Prototyping
 - Firmware Development (Marlin, Custom Firmware)
 - Mechanical Design
 - Robotics Development
 - A.I Development
 - Video Editing (VideoProc Vlogger, iMovie, GoPro Quick)
 - Photography
 - Videography
2. Outside the box thinking.
3. Touch typing.

EXPERIENCE

Self-Taught Engineer | AI, Robotics & 3D Printing (2014–Present)

- Developing AI-powered 3D printing solutions for predictive maintenance, defect detection, and optimization.
- Building a Raspberry Pi cluster for high-availability web hosting and backend infrastructure.
- Researching and implementing GPU acceleration with NVIDIA technologies for AI and computer vision applications.
- Working with Marlin firmware and G-code programming to fine-tune 3D printer motion control.

Self-Taught Robotics & Embedded Systems Engineer (2016–Present)

- Designing and building robotic systems for automation, additive manufacturing, and AI-assisted tasks.
- Working with ROS (Robot Operating System) for robotic control and integration.
- Experimenting with edge AI platforms like NVIDIA Jetson for real-time machine learning in robotics.
- Developing custom firmware and microcontroller-based solutions for mechatronic applications.

Self-Taught Web & Server Infrastructure Engineer (2018–Present)

- Setting up a secure Ubuntu Server to self-host a portfolio website with maximum security.
- Developing a React-based UI to display WakaTime shareables and real-time development stats.
- Configuring networking and security for public-facing services with high availability.

Self-Taught Game Developer | Personal Projects (2018–Present)

- Developing game mechanics, physics simulations, and AI behaviors using Unity and Unreal Engine.
- Programming in C#, C++, and Python for gameplay logic, AI scripting, and physics interactions.
- Designing 3D assets, environments, and animations using Blender and procedural generation techniques.
- Optimizing game performance through GPU-accelerated rendering, asset compression, and physics tuning.

Self-Taught 3D Printing & Mechatronics Engineer (2021–Present)

- Disassembled and reassembled the Ender 3 V2 XZ gantry and Z-axis unit for full calibration and alignment.
- Designed and implemented custom firmware modifications for improved print quality and motion precision.
- Engineered and troubleshooted mechanical and electronic components of 3D printers.
- Created guides and documentation for maintenance, part replacements, and upgrades.

Self-Taught Cybersecurity & Ethical Hacking Enthusiast (2023–Present)

- Researching and testing security vulnerabilities in embedded systems, IoT devices, and Linux-based servers.
- Setting up and hardening Ubuntu Server for self-hosted services with high security.
- Conducting penetration testing on personal projects to enhance cybersecurity awareness.
- Exploring reverse engineering and hardware hacking for security analysis of embedded devices.

PRIMARY EDUCATION

Craiglands Primary , 20 Grosvenor Ave, Craighall Park, Randburg, 2196

January 2010 – December 2021, LOCATION

AWARDS and ACHIEVEMENTS

- Awarded 30 Merit badge 2010 in Grade 1.
- Awarded 60 Merit badge 2010 in Grade 1.
- Awarded 30 Merit badge 2011 in Grade 2.
- Awarded 60 Merit badge 2011 in Grade 2.
- Awarded 30 Merit badge 2012 in Grade 3.
- Awarded 30 Merit badge 2012 in Grade 3.
- Received Science Award 2012 in Grade 3
- Awarded 30 Merit badge 2013 in Grade 4.
- Awarded 60 Merit badge 2013 in Grade 4.
- Awarded 30 Merit badge 2014 in Grade 5.
- Awarded 30 Merit badge 2015 in Grade 6.
- Awarded 60 Merit badge 2015 in Grade 6.
- Awarded 30 Merit badge 2016 in Grade 7.
- Awarded 60 Merit badge 2016 in Grade 7.
- Awarded 100 Merit badge 2016 in Grade 7.
- Nominated as prefect candidate in 2016, Grade 7.
- Awarded the title of Head-prefect in 2016, Grade 7.

SECONDARY EDUCATION

Northside College, 288 Castlehill Dr, Blackheath, Randburg, 2115

January 2017 – December 2018, LOCATION

AWARDS and ACHIEVEMENTS

- Received the Award of Merit for Diligence in Grade 8 2017

Concord College, 104 Malibongwe Dr, Praegville, Randburg, 2194 – *Matric*

January 2019 – December 2021, LOCATION

AWARDS and ACHIEVEMENTS

- Bronze in academics in 2019.
- Silver in academics in 2019.
- Top achiever in Afrikaans in 2019.
- Awarded Top Achiever 2019 trophy in Grade 10.
- Nominated as prefect candidate in 2020.
- Awarded the title of prefect in 2021.
- Top Achiever in 2021.
- Awarded the headmasters trophy.
- Achieved a bachelor pass in NSC certificate.

VOCATIONAL EDUCATION

(Completed)

S.A.R.L, National Amature Radio Centre, Radiokop, Johannesburg, South Africa – *Class A Licened Amature Radio operator*

April 2022 – January 2023,

The National Amataur Radio Centre or commonly abbreviated to as *N.A.R.C* by many licenced operators. The National Amateur Radio Centre is the headquarters for the *Santon Amateur Radio League* or *S.A.R.L* for short. The building consists of Office blocks as well as conference blocks.

These blocks are utilized for operating the Santon Amateur Radio League and is the main-campus where students write their exams, ultimately becoming a Class A licenced Amateur Radio operator.

In fact I first wrote my class B license in 2014 at the age of 12, the day where I truly found a passion in programming and technology.

AWARDS and ACHIEVEMENTS

- Achieved Class A Amature Radio operator License.
- Received the “Enquiring minds Award 2024”.

Alison, online – *Basics in touch typing*

January 2025 – February 2025, online

AWARDS and ACHIEVEMENTS

- Certificate in touch typing

VOCATIONAL EDUCATION

(In-progress)

LibertyU, 347 West Ave. Ferndale, Randburg, Gauteng, South Africa – *Degree in Theology*

February 2025 – present, Liberty North campus

AWARDS and ACHIEVEMENTS

- None at the moment.

Study roadmap **2025 - 2030**

This roadmap is categorized into Beginner, Intermediate, and Advanced (Legendary) levels. The completion time assumes a structured, focused study schedule.

1. Programming Certifications

Beginner (0-3 months each):

- Certified Python Programmer (PCEP) - (Python Institute) - 1-2 months
- Oracle Certified Associate (OCA) - Java SE - (Oracle) - 2-3 months
- Microsoft Certified: Azure Fundamentals - (Microsoft) - 1-2 months
- C Programming Certification - (C Programming Institute) - 1-2 months

Intermediate (3-6 months each):

- Microsoft Certified: Azure Developer Associate - 4-6 months
- Oracle Certified Professional (OCP) - Java SE - 4-6 months
- Certified C++ Programmer (PCCP) - 4-5 months
- Microsoft Certified: C# Fundamentals - 3-4 months

Advanced (Legendary, 6-12 months each):

- Oracle Certified Master (OCM) - Java SE - 6-12 months
- Microsoft Certified: Azure Solutions Architect Expert - 6-9 months
- Certified C++ Master (PCCP) - 6-9 months
- Microsoft Certified: C# Advanced Developer - 5-7 months

2. AI & GPU Computing Certifications (NVIDIA & Deep Learning)

Beginner (0-3 months each):

- NVIDIA DLI - AI & Deep Learning Fundamentals - 2-3 months
- Jetson AI Specialist Certification - 2-3 months

Intermediate (3-6 months each):

- DLI - Computer Vision for AI Applications - 4-5 months
- CUDA Programming and Performance Optimization - 4-6 months

Advanced (Legendary, 6-12 months each):

- NVIDIA AI Enterprise Certification - 6-9 months
- NVIDIA Certified Developer - GPU Computing - 6-9 months
- Jetson Nano Certification (for Edge AI) - 6-9 months

Use Case in Prospera Labs Inc.:

- AI-powered print optimization
- Real-time defect detection
- Predictive maintenance
- GPU-accelerated computational design

3. Math and Physics Certifications

Beginner (3-6 months each):

- Mathematics for Data Science Certification - (MITx) - 3-4 months
- Fundamentals of Physics - (edX, MITx) - 4-6 months

Intermediate (6-9 months each):

- Certified Data Scientist (DASCA) - 6-8 months
- Mathematics of Machine Learning - 6-9 months

Advanced (Legendary, 9-18 months each):

- Certified Professional Data Scientist (CPDS) - 9-12 months
- Advanced Physics Certification - 12-18 months

4. Cloud Computing Certifications

Beginner (2-4 months each):

- AWS Certified Cloud Practitioner - 2-3 months
- Microsoft Certified: Azure Fundamentals - 1-2 months
- Google Cloud Certified - Associate Cloud Engineer - 3-4 months

Intermediate (4-6 months each):

- AWS Certified Solutions Architect - Associate - 4-6 months
- Microsoft Certified: Azure Solutions Architect Expert - 4-6 months
- Google Cloud Certified - Professional Cloud Architect - 5-6 months

Advanced (Legendary, 6-12 months each):

- AWS Certified Solutions Architect - Professional - 6-9 months
- Certified Kubernetes Administrator (CKA) - 6-9 months
- Certified Cloud Security Professional (CCSP) - 6-12 months

5. Cybersecurity and Ethical Hacking Certifications

Beginner (2-4 months each):

- CompTIA Security+ - 2-3 months
- Certified Ethical Hacker (CEH) - 3-4 months

Intermediate (4-6 months each):

- Certified Information Systems Security Professional (CISSP) - 5-6 months
- CompTIA Cybersecurity Analyst (CySA+) - 4-6 months

Advanced (Legendary, 6-12 months each):

- Certified Information Privacy Professional (CIPP) - 6-9 months
- Certified Information Systems Auditor (CISA) - 6-9 months
- Offensive Security Certified Professional (OSCP) - 9-12 months

6. Product Design & Engineering Certifications

Beginner (3-6 months each):

- Autodesk Certified Professional (AutoCAD) - 3-4 months
- Certified SOLIDWORKS Associate (CSWA) - 3-4 months

Intermediate (6-9 months each):

- Certified SOLIDWORKS Professional (CSWP) - 6-7 months
- Autodesk Certified Expert (AutoCAD) - 6-9 months

Advanced (Legendary, 9-12 months each):

- Certified Product Design Engineer (CPDE) - 9-12 months
- Certified Professional Engineer (PE) - 9-12 months
- Certified Additive Manufacturing Technician (AMT) - 9-12 months

7. Project Management Certifications

Beginner (2-4 months each):

- Certified ScrumMaster (CSM) - 2-3 months
- Project Management Professional (PMP) - 3-4 months

Intermediate (4-6 months each):

- Lean Six Sigma Green Belt - 4-5 months

Advanced (Legendary, 6-12 months each):

- Certified Scrum Product Owner (CSPO) - 6-8 months
- Lean Six Sigma Black Belt - 8-12 months

Finalized Timeline & Strategy

- Year 1-2: Focus on Programming, AI/GPU Computing, and Cloud Computing certifications.
- Year 3-4: Cybersecurity, Engineering, and Advanced AI certifications for integrating AI into the 3D printing ecosystem.
- Year 5: Master-level certifications, including CUDA optimization, Kubernetes, and AI-driven manufacturing.

Estimated Completion Time: 3-5 Years